REMARKS

This application has been amended in a manner that is believed to place it in condition for allowance at the time of the next Official Action.

In the outstanding Official Action, the Examiner objected to the Information Disclosure Statement filed September 26, 2000 for allegedly failing to comply with 37 CFR §1.98(a)(2). The Official Action stated that the JP 08-334515 document is missing from the Information Disclosure Statement. Applicants hereby submit a copy of the Japanese patent abstract 08-334515.

In light of the objections raised in paragraphs 3 and 4 of the Official Action, the present specification has been amended to incorporate the reference signs as indicated by the Official Action. The reference sign "35" on page 17 is now "70" which is consistent with the drawings. However, Applicants note that the reference signs "182", "184" and "198" are mentioned on pages 25 and 26 of the specification. Thus, applicants believe no changes in connection with these reference signs are necessary.

Applicants have reviewed the specification and have made amendments to the description and claims in light of informalities cited in paragraphs 6 and 8 to 11 of the Official Action. A substitute specification and a marked-up copy of the specification are submitted herewith. Thus, applicants submit that the amended specification is in proper order and that the

claims have been amended in a manner to obviate the indefiniteness rejections of the Official Action.

Claims 1-3, 6-10 and 23 were rejected under 35 USC §102(e) as allegedly being anticipated by SAKAZUME et al. 5,985,215.

Applicants believe that SAKAZUME et al. fail to disclose or suggest the present invention. The present invention is directed to a pathology distribution system. The system comprises a loaded station for loading samples in primary containers of different types, a sample handling station for receiving the containers and identifying container types, and a container distribution station for distributing the containers in areas or racks in the distribution station marked for analyzing processes prescribed for the samples therein. The handling station includes an image analyzer. The image analyzer is capable of analyzing and determining a number of characteristics unique to the samples. For example, the image analyzer may have a digital camera for capturing an image containing these characteristics.

In addition, the image analyzer is capable of detecting the volume and level of the sample present in the container. By determining the level and the volume of the sample, the system is capable of determining whether an additional process step such as aspiration is required. The system may also include a bar scanner to scan bar-coded labels.

If aspiration is required, the container is sent to a decapping and recapping apparatus for further processing. Secondary tubes for receiving dispensed samples are also present by way of container hoppers. Pipette tips for the aspiration process are delivered automatically from a pipette hopper. Dispensed or defective tips are automatically ejected. The secondary containers are heat sealed with laminate caps before being delivered back to the distribution station.

It is believed that the cited publications in the outstanding Official Action fails to disclose or suggest the claimed invention.

The claimed invention is directed to a sample container handling apparatus comprising a container handling station located in a transfer path of containers for pathological analysis. The handling station includes a container identification means arranged to capture a container image or images containing one unique characteristic or a unique set of characteristics of a container received at the handling station and to analyze the captured image or images for extracting the characteristic or set of characteristics with predetermined characteristics or sets of characteristics for a match or near match. The characteristics of the container may include dimensions of the container, unique areas on the container, the shape and color of the cap of the container or other characteristics (see present specification pg. 6, lines 17-30).

By analyzing the captured image(s) that contains a unique characteristic or a unique set of characteristics, a container type can be identified. Moreover, the predetermined characteristics and sets of characteristics for comparing each container type can be expanded by software.

The analyzing apparatus as taught in SAKAZUME et al. has racks 20, each with a plurality of holding holes for holding sample containers 10. Windows 22 are provided for the holding holes. For relatively shorter containers, adaptors 30 with holes 32a and 32b are used. The racks 20 are progressively moved from a rack feeding until 110 onto a transfer line 130 for transferring to a rack collection unit. Along the passage, sample containers in the racks 20 are subject to certain detection and scanning processes at a discrimination unit 140. One of the processes is carried out by a container type discrimination part 146 which uses paired light emission diodes A1-A5 and photo diodes B1-B5 set at different levels 1-5 to provide signal patterns relating to detection of exposed sections of the containers and sections that are in the windows 22. The racks 20 must travel at a constant speed as the periods of the signal patterns are used for determining the widths of the container in the racks 20.

By comparing the detected signal pattern with predetermined signal patterns from known container types, the

apparatus 100 of SAKAZUME et al. can determine container types on the basis of different widths and lengths.

The apparatus 100 of SAKAZUME et al. requires sample racks 20 with windows 22 for the holding holes. Adaptors 30 with appropriate holes 32a and 32b must also be used for shorter containers. As such, the racks 20 are complex in construction. The transfer line 130 must also be precisely controlled so that its speed is constant. More importantly, as the container type discrimination part 146 can only provide signal patterns based on lengths and widths of the containers. The control part 120 cannot differentiate different container types with the same length and same width.

In contrast, the apparatus of the claimed invention has containers transferred sequentially to a container handling station where a container type identification means is arranged to capture an image or images of each container received and the captured image or images is analyzed to extract a unique characteristic or unique set of characteristics. Identification of the container type is determined by comparing the extracted characteristic or set of characteristics with predetermined characteristics or sets of characteristics for finding a match or near match between the extracted and the predetermined characteristics.

The claimed apparatus can therefore identify different container types with the same length and same width as long as



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there is a unique characteristic or a unique set of characteristics. For example, the apparatus of amended claim 1 can identify a container type of a container with a red cap where the color of the cap is unique amongst the container types. In another example, the claimed apparatus can identify a container type with a gel therein. The container's shape and dimensions may be the same, but the apparatus can distinguish the containers on the basis that they have a gel layer alone. Thus, applicants respectfully submit that SAKAZUME et al. fail to disclose or suggest the claimed invention.

Claims 1-2, 6-10, 17-18 and 23 were rejected under 35 USC §102(e) as allegedly being anticipated by KIRK et al. 5,798,035.

As mentioned earlier, the claimed apparatus has a container identification means arranged to capture a container image or images containing one unique characteristic or a unique set of characteristics of a container received at a container handling station.

In the method and system disclosed by KIRK et al., bar codes (4) are placed on reaction vessels (1) for representing reaction conditions which have occurred or that will occur. A bar code reader (18) is adapted to read each bar coded vessel (1) and the read bar code is decoded for determining the destination of the container for the next reaction step. Accordingly, the bar codes are not for identifying vessel (i.e. container) types

as claimed in the present invention, and the bar code reader (8) does not capture an image or images as does the claimed invention. Applicants therefore submit that KIRK et al. fail to anticipate or render obvious the cited invention.

The Examiner's attention is also further directed to claim 17. Claim 17, as amended, has a magazine arranged between the upper and lower sections of the hopper means. The magazine has compartments for loading the containers from the upper section and is positionable to place the compartments sequentially over the lower section for sequentially releasing the containers in the compartments to fall into the guide section. The containers in the compartments are orientated substantially horizontally. The guide section is configured so that the containers released from the magazine are aligned to a substantially vertical position with the open ends of the containers in position to receive samples.

The system and method disclosed by KIRK et al. uses a ramp (28) to transfer reaction vessels (1) from a hopper (15) onto an alignment fixture (27). The alignment fixture (27) is then rotated so that the reaction vessels are vertically oriented. KIRK et al. does not disclose or suggest the use of a magazine with compartments arranged to load containers from the upper section of the hopper of claim 17. Moreover, the magazine of claim 17 is positionable to sequentially place the compartments over the lower guide section of the hopper, and the

lower guide section is configured to guide a container therein to be released in a substantially vertical orientation with the open end of the container in position to receive samples. Thus, the apparatus of claim 17 is less costly to produce, as it does not require turning of the lower guide section as in the case of the alignment fixture (17) of KIRK et al. Applicants therefore submit that claim 17 and claim 18, which is dependent on claim 17, are patentable over the KIRK et al. reference.

Claims 1-2, 6-8 and 23 were substantially rejected under 35 USC §102(b) as allegedly being anticipated by RAO et al. 5,948,360.

The autosampler disclosed in RAO et al. uses an optical bar code reader assembly (58) to read a bar code pattern on an outside wall of each vial. As mentioned in the remarks connected with KIRK et al., the reader assembly (58) is not able to capture an image or images containing a unique characteristic or a unique set of characteristics of a container so that the container type can be identified. Accordingly, as for the reasons given for KIRK et al., applicants submit that RAO et al. fail to disclose or suggest the claimed invention.

Claims 4 and 5 were rejected under 35 USC §103(a) as allegedly being unpatentable over SAKAZUME et al. in view of RAO et al.

As disclosed earlier in respect of SAKAZUME et al., the claimed apparatus has a container identification means arranged

to capture a container image or images containing one unique characteristic or a unique set of characteristics. The extracted characteristic(s) is then compared with predetermined characteristic or a set of characteristics for a match or near match in order to identify a container type.

Moreover, RAO et al. do not teach or suggest any means for container type identification. As such, it is respectfully submitted that SAKAZUME et al. in view of RAO et al. fails to disclose or suggest the claimed invention.

In view of the present amendment and the foregoing remarks, therefore, it is believed that this application is now in condition for allowance for claims 1-10, 17-18 and 23-24, as presented. Allowance and passage to issue on that basis are accordingly respectfully requested.

Attached hereto is a marked-up version showing the changes made to the claims and specification. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

YOUNG & THOMPSON

By Philip A. DuBois

Philip A. DuBois
Agent for Applicants
Registration No. 50,696
745 South 23rd Street
Arlington, VA 22202
Telephone: 703/521-2297

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